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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 9. February, 1907. No. 98

NOTES ON MUHLENBERGIA.

F. Lamson-Scribner.

A critical study of eastern species of *Muhlenbergia* as represented by the material in the National Herbarium, has led to a somewhat new classification of the species heretofore recognized and the segregation of several subspecies and one new species. The results of this study are here presented.

Section 1. Glumes minute, the first sometimes obsolete. *Muhlenbergia* proper.

1. Muhlenbergia Schreberi Gmel. Syst. Nat. **2**: 171. 1791. *M. diffusa* Willd. Enum. **1**: 81. 1809; Schreb. Gram. **2**: 143. Pl. 51. 1810.

1a. Muhlenbergia Schreberi **curtisetosa** Scribn. n. subsp. Panicles 3–12 cm. long; spikelets 2.5–3 mm. long; glumes unequal, the first ovate, obtuse, about 1 mm. long, the second ovate or ovate-lanceolate, obtuse, acute or abruptly mucronate-pointed, 1–2 mm. long; lemmas short-awned; awns 1 mm. or less in length. Type collected by J. Wolf in Illinois in 1881. Other specimens in the Natl. Herb.; Illinois, *J. Wolf*, 1882, Champaign, Illinois, *G. P. Clinton*, 1892. No. 204 *A. Commons* from Centerville, Delaware, apparently belongs here.

1b. Muhlenbergia Schreberi **palustris** Scribn. n. comb. *Muhlenbergia palustris* Scribn. U. S. Dept. Agric. Div. Agros. Bul. **11**: 47. 1898. Culms filiform; sheaths naked at the throat; both glumes manifest; awns 5–6 mm. long. Swamps, Brightwood, District of Columbia (Type locality).

Section 2. Glumes ovate, acute, much shorter than the lemmas. (*Stenocladium* Trin. Fund. Agros. 117, as a section of *Trichochloa.*)

2. Muhlenbergia sobolifera (Muhl.) Trin. Gram. Unifl. 189.

Pl. 5, fig. 4. 1824. *Agrostis sobolifera* Muhl. in Willd. Enum. 95. 1809. *Trichochloa sobolifera* Trin. l. c.

2a. Muhlenbergia sobolifera **setigera** Scribn. n. subsp. Culms very slender, much branched; lemmas awned; awns 1–3 mm. long. Otherwise as in the species. Type, no. 70 *J. Reverchon*, Texas, in Natl. Herb. No. 1054 *J. Reverchon* in Natl. Herb., also from Texas, belongs here.

3. Muhlenbergia tenuiflora (Willd.) B. S. P. Prelim. Cat. Pl. N. Y. 67. 1888. *Agrostis tenuiflora* Willd. Sp. Pl. **1**: 364. 1797. *Muhlenbergia Willdenowii* Trin. Gram. Unifl. 188. 1824. *Trichochloa longiseta* Trin. Fund. Agros. 117. 1820.

3a. Muhlenbergia tenuiflora **variabilis** Scribn. n. subsp. Culms smooth at the nodes, much branched above; panicles linear, strict, erect, more rigid than in the species; spikelets 4 mm. long; lemmas mucronate or short-awned; awns 2–3 mm. long. Type, no. 654a *Biltmore Herbarium* from Chimney Mountain, Rutherford, North Carolina, distributed as *Muhlenbergia sobolifera*.

Section 3. Glumes narrow, acuminate or aristate, nearly as long as or exceeding the lemmas in length. (*Acroxis* Trin. Fund. Agros. 117, as a section of *Trichochloa*.)

4. Muhlenbergia mexicana (Linn.) Trin. Gram. Unifl. 189. 1824. *Agrostris mexicana* Linn. Mant. **1**: 31. 1767. *Trichochloa mexicana* Trin. Fund. Agros. 117. 1820. *Muhlenbergia polystachya* Mac. & Bush. Trans. Acad. Sci. St. Louis, **12**: 79. Pl. 12. 1902. *Agrostis lateriflora* Michx. Flor. Bor. Am. **1**: 53. 1803. Culms diffusely branched throughout from the base; panicles numerous, 3–10 (usually about 6) cm. long, oblong-ovoid or subpyramidal, rarely linear, the base usually enclosed within the subtending leaf-sheath.

4a. Muhlenbergia mexicana **commutata** Scribn. n. subsp. Lemmas awned; awns 4–10 mm. long. Otherwise as in the species. (*M. sylvatica*, in part of authors.) Quite distinct from *Agrostis sylvatica* Torr. upon which *Muhlenbergia sylvatica* was based. Specimens in Natl. Herb.: no. 171 *M. L. Fernald*, 1893 and nos. 528, 1894 and 522, 1896, all from Maine; no. 80 *Wm. Harriot*, 1901, from Ontario and no. 26,245 *J. Macoun*, 1901, from the same region. Other specimens from New York, Delaware, Pennsylvania, Illinois and Minnesota. The specimens from Delaware (no. 206 *A. Commons*) have aristate glumes

equalling or slightly exceeding the florets and awns of the latter 6–10 mm. long. An exact counterpart of this form, but awnless and placed under the species, was collected by C. R. Ball at Athens, Illinois, in 1892. The specimens from Pennsylvania (coll. by T. C. Porter, 1895), with rather loose subpyramidal panicles are exactly represented by awnless specimens collected in Illinois by J. Wolf in 1892. The latter are referred to the species.

5. Muhlenbergia foliosa Trin. Gram. Unifl. 190. 1824. *Trichochloa foliosa* Trin. Fund. Agros. 117. 1820. *Agrostis foliosa* R. & S. Syst. 2: 373. 1817. *Agrostis filiformis* Willd. Enum. Hort. Berol. 1: 95. 1809, not Sprengel 1807. *Agrostis filiformis* Muhl.! Gram. 66. 1817. *A. lateriflora filiformis* Torr. Fl. 1: 66. 1824. *Muhlenbergia mexicana filiformis* Scribn. Mem. Torr. Bot. Club. 5: 36. 1894. *Muhlenbergia mexicana* of authors in part. Culms branched above rarely to the base, branches elongated; panicles 5–15 cm. long, narrowly lanceolate to filiform, long-exserted, densely flowered, more or less interrupted especially towards the base.

The type of Muhlenberg's *Agrostis filiformis* is in his herbarium, deposited in the Academy of Natural Sciences of Philadelphia, and is the species here referred to *Muhlenbergia foliosa* Trin. assuming that it is identical with the *Agrostis filiformis* of Willdenow upon which *M. foliosa* was founded. Both Willdenow and Muhlenberg note the close affinity of this species with *M. mexicana* and Trinius in his later writings (Trans. St. Petersb. Acad. VI, 6^2: 278. 1841) refers *M. foliosa* to that species. The habit of the plant and especially the fewer much exserted and more elongated panicles and more densely flowered panicle-branches serve to distinguish the species as here classified. *Agrostis frondosa* Poir. Encycl. Suppl. 1: 252. 1810, was considered by Roemer & Schultes as identical with *Agrostis filiformis* Willd. The identity of Poiret's species is now doubtful; he says of it that it grows in Germany and resembles *Agrostis mexicana* Linn. in its inflorescence.

Among the specimens in the National Herbarium referred to *Muhlenbergia foliosa* are the following: nos. 524, 526 and 529 *M. L. Fernald,* from Maine, no. 68 *H. B. Dorner* from Indiana; no. 794 *E. A. Mearns* from Minnesota; nos. 1686, 1756, 1764, 1704, and 2848 *P. A. Rydberg* from Nebraska; no. 521 *David Griffiths* from

Wyoming; no. 359 *O. B. Metcalfe* from New Mexico; nos. 26,248, 26,247 and 26,246 *J. Macoun* from Ontario.

5a. Muhlenbergia foliosa **ambigua** Scribn. n. comb. *Muhlenbergia ambigua* Torr. in Nicollet's Rept. 164(237). 1843. *M. sylvatica* Auct. in part. Lemmas awned; awns 4–10 mm. long. Otherwise as in the species.

A specimen of the type collection of *Muhlenbergia ambigua* is in the National Herbarium. Other specimens referred here are no. 26,244 *J. Macoun*; no. 80 *Wm. Harriot*; no. 525 *M. L. Fernald*, 1893; no. 527 *M. L. Fernald*, 1894. A specimen from Delaware, collected by A. Commons in 1897, has panicles rather more closely flowered and more rigid than usual. An awnless counterpart of this form was collected by C. R. Ball in Ohio in 1892. The presence of a more or less developed second floret noted in the original diagnosis of *M. ambigua*, occurs in other species of this group.

5b. Muhlenbergia foliosa **setiglumis** Scribn. n. comb. *M. sylvatica setiglumis* S. Wats. U. S. Geol. Expl. Exped. 40th Par. **5**: 378. 1871. "Glumes attenuate into a scabrous bristle 2½–3 lin. long; the palet with its awn about twice longer" (S. Wats. l. c.). The habit of this subspecies is entirely that of *Muhlenbergia foliosa* and the plant differs from *M. foliosa ambigua* only in the awn-like prolongation of the glumes beyond the floret as in *M. racemosa*. A specimen from the type collection is in the National Herbarium, no. 1,288 *S. Watson*, from near Warm Springs, Humboldt Pass, Nevada. To this subspecies are referred no. 2,838 *T. A. Williams* from Wyoming; no. 3 *Williams* from South Dakota; no. 927 *Griffiths & Morris* from Oregon and no. 2 *F. P. Briggs* from Bradley, Maine, In Briggs' specimen the glumes equal or much exceed the florets in different spikelets in the same panicle.

6. **Muhlenbergia umbrosa** Scribn. n. nom. *Agrostis sylvatica* Torr. Fl. U. S. **1**: 87. 1824, not Linn. 1762. *Agrostis diffusa* Muhl. Gram. 64. 1817, not Host 1809. *Muhlenbergia sylvatica gracilis* Scribn. Trans. Kans. Acad. Sci. **9**: 116. 1885, not *M. gracilis* Kunth 1829.

Muhlenbergia sylvatica Torr. & Gray was based upon *Agrostis sylvatica* Torrey, who changed the name from *Agrostis diffusa* Muhl. because of an earlier *Agrostis diffusa* by Host, apparently overlooking the much earlier *Agrostis sylvatica* of Linnaeus. There being no

other name available for this very well defined species a new one, *M. umbrosa*, is here proposed.

Torrey thus describes the species closely following Muhlenberg in his diagnosis of *Agrostis diffusa* "Culms erect, much branched, diffuse, smooth; stipules lacerate panicle filiform; corolla longer than the calyx; awns three times as long as the flower." Torrey compares the species with *M. tenuiflora* from which he says it differs "in being much branched and diffuse, the glumes are also longer and narrower and the culms are glabrous at the nodes."

The type of this species is in Muhlenberg's herbarium in the Academy of Natural Sciences of Philadelphia. It has much branched culms with numerous filiform panicles and long-awned spikelets. No. 205 *A. Commons* from Delaware and no. 461 *B. Fink* from Iowa, both in the Natl. Herbarium are identical with the type. The general aspect of the species is unlike that of either *M. foliosa ambigua* or *M. mexicana commutata*, both of which have heretofore been referred to *M. sylvatica* by authors. The panicles are more slender, the spikelets are less crowded and are usually pale green or straw-colored, never violet or purplish as is usual in those subspecies.

6a. MUHLENBERGIA UMBROSA **attenuata** Scribn. n. subsp. Lemmas awnless or merely mucronate-pointed. Otherwise as in the species. Type, no. 25 *E. N. Wilcox* from Aurora Co., South Dakota. No. 27 *J. H. Kellogg* from Missouri; no. 8096 *E. S. Steele* from the District of Columbia; no. 523 *M. L. Fernald* from Maine, belong here. The subspecies ranges from Maine to Dakota and Nebraska southward to Missouri and Kansas.

A very careful study of the abundant material classified under *Muhlenbergia mexicana* and *M. sylvatica* in the National Herbarium, has led to the interesting conclusion that both these species present awned and awnless forms and that the true *M. sylvatica* should be limited to the *Agrostis diffusa* of Muhlenberg, a well marked species quite distinct from awned forms of *M. mexicana* or of the restored *M. foliosa* of Trinius. In the case of these latter species it was found that every slight variation in habit in plants with awnless spikelets could be exactly matched by awned specimens, the presence of the awn being the only difference whatever. The natural conclusion is that the awnless and awned plants belong to the same species and that at best the latter (those with awned spikelets) could only be treated as subspecies of the former. It appears also, that *Muhlen-*

bergia Schreberi, M. tenuiflora and *M. umbrosa*, all awned species, present forms in which the awns are very much reduced and that in the awnless *M. sobolifera* an awned form occurs. The importance of the awn as a character for diagnosis in this group of species has apparently been much overestimated.

7. Muhlenbergia racemosa (Michx.) B. S. P. Prelim. Cat. Pl. N. Y. 67. 1888. *Agrostis racemosa* Michx. Fl. **1**: 53. 1803. *Agrostis setosa* Muhl. Gram. 68. 1817. *Trichochloa glomerata* Trin. Fund. Agros. 117. 1820. *Muhlenbergia glomerata* Trin. Gram. Unifl. 191. 1824. This well known species ranges from Newfoundland to Washington and British Columbia and southward in the east to North Carolina and in the west to Texas (?), New Mexico and Arizona.

7a. Muhlenbergia racemosa ramosa (Vasey) Beal. Grasses N. Am. **2**: 253. 1896. *M. glomerata ramosa* Vasey Cat. Grasses U. S. 40. 1885. "A much branched spreading form, Illinois to Colorado and Montana" (Vasey l. c.). "Stout, much branched below, very leafy. Prairie regions." (Vasey Contrib. U. S. Natl. Herb. **3**: 68. 1892.) No. 397 *Griffiths* from South Dakota, no. 405 *B. F. Bush* from Missouri, no. 2853 *F. Clements* from Nebraska and no. 265 *B. B. Smyth* from Kansas belong here. This is the common form in the prairie regions of the west.

7b. Muhlenbergia racemosa **violacea** Scribn. n. subsp. characterized by its slender simple culms usually violet or dark purple and more or less interrupted panicles, abruptly aristate glumes and comparatively small spikelets. Type from North Hannibal, New York, collected by *O. E. Pearce* 1883 without number. No. 748 *E. H. Mearns* from Minnesota belongs here. This subspecies is less well defined than the last. It is apparently common in the north growing usually in bogs.

8. **Muhlenbergia glabrifloris** Scribn. n. sp. A slender branching glabrous perennial 4–6 dm. high, from scaly rootstocks, with flat erect or ascending leaves, slender strict panicles and awnless spikelets 2.5–3 mm. long. Culms terete, very minutely scabrous for a short distance below the nodes, soboliferous at the base; sheaths somewhat compressed, smooth, mostly shorter than the internodes, crowded on the branches, naked at the throat; ligule very short, 1 mm. or less long, minutely ciliate on the edge; leaf-blades 2–10 cm. long, 1–4 mm. wide, acute, very minutely scabrous

along the margins and nerves; panicles simple, 2–6 cm. long, occasionally somewhat glomerate, the closely flowered short branches appressed, usually partly enclosed in the subtending leaf-sheath; pedicels scabrous, usually much shorter than the spikelets; spikelets ovate-lanceolate; glumes lanceolate, acute or acuminate-pointed, subequal, a little shorter than, as long as, or a little longer than the floret, scabrous on the keel excepting near the base; lemmas ovate or oblong, obtuse or submucronate-pointed, scabrous on the keel and lateral nerves above, otherwise smooth, no hairs at the base; palea ovate-oblong, obtuse, equalling or a little shorter than the lemmas.

Type, no. 5 *J. Reverchon*, from Texas in the National Herbarium. Other specimens are from Illinois, *J. Wolf* and *E. Hall.* Hall's specimen is presumably from Athens in 1868 and was first referred to *M. sylvatica* by Vasey, who later regarded it as a doubtful variety of *M. mexicana.* The culms are branching throughout and the numerous small panicles terminating the branches and partly included in the subtending leaf-sheaths present the habit of *M. mexicana*, but the plant is more slender throughout especially in its panicles, the texture of the glumes and lemmas is much softer and the latter are perfectly smooth at the base there being no hairs either upon the callus or on the body of the lemma. The spikelets are rather those of a *Sporobolus* than a *Muhlenbergia* but the plant evidently belongs with the soboliferous species of the latter.

Bureau of Plant Industry,
U. S. Department of Agriculture,
Washington, D. C.

THE ALPINE RHINANTHUS OF QUEBEC AND NEW HAMPSHIRE.

M. L. Fernald.

The plants which have long passed in eastern America as *Rhinanthus Crista-galli* L., in part (*R. minor* Ehrh.), occupy two strikingly different geographic areas. One, apparently the true *R. Crista-galli* (*R. minor*), abounds in sterile fields and meadows, and along road-

sides and borders of thickets in eastern Quebec and Newfoundland, chiefly near the coast, and extends thence southward along the New England coast. The other has long been known in alpine regions of the White Mountains, and in 1881 it was collected by Mr. John A. Allen upon Table-topped Mountain in Gaspé Co., Quebec.

The writer has long felt that the plant of Oakes Gulf and the Alpine Garden in the White Mountains and of Table-topped Mountain in Gaspé should not be regarded as identical with the coastal *Rhinanthus Crista-galli*, but not until the past summer has he had an opportunity to test his convictions by study in the field of the alpine plant. In August last, however, this Rhinanthus was found in profusion on cool boggy meadows and open slopes at altitudes varying from 950 to 1125 meters, on Table-topped Mountain. It was most abundant in meadows, where it was associated with *Phleum alpinum*, *Deschampsia atropurpurea*, *Juncus castaneus*, *Salix vestita*, *S. argyrocarpa*, *Rubus arcticus*, *Pyrola grandiflora*, *Veronica alpina*, var. *unalaschcensis*, *Castilleja pallida*, var. *septentrionalis*, *Gnaphalium norvegicum*, and other arctic-alpine species, with some of which it occurs in the White Mountains. Abundant flowering and fruiting material was secured, and notes were made from the fresh plant, which, upon the return to the shores of the lower St. Lawrence, showed that the alpine Rhinanthus is clearly distinct from the common coastal *R. Crista-galli*. A detailed study of this and of the other species of *Rhinanthus* of America and of northern Europe, as recently defined in the works of Chabert, Sterneck, and others, shows, furthermore, that the plant of the White Mountains and of Table-topped Mountain is apparently an undescribed species, and that it occurs also on the coast of Labrador. This plant, from the characteristic outline of the cauline leaves may be called

Rhinanthus **oblongifolius**, n. sp. Planta 0.6–4 dm. alta viridis basi glabra superne ad internodiorum latera pilosa simplex; foliis caulinis quam internodia brevioribus oblongis vel in speciminibus minoribus linearibus scabridis obtusis crenato-dentatis, dentibus latis appressis; spicis 2–12-floris; bracteis scabris, infimis foliis supremis similibus, mediis et superioribus triangulari-ovatis attenuatis calycem subaequantibus laciniato-dentatis, dentibus inferioribus patulis aristato-acuminatis quam superiores longioribus; calyce florifero ovato-oblongo fructifero suborbiculato 1.3–1.9 cm. longo glabrescente, marginibus ciliatis; corolla flava 1–1.2 cm. longa, tuba recta exserta; labia superiore 3–4 mm. longa, margine inferiore convexo dentibus flavis oblique quadrilateralibus subtruncatis 0.5 mm. longis, 1.5 mm. latis;

abia inferiore 1 mm. longa flava vel raro violacea; seminibus reniformibus 5–6 mm. longis 3.5 mm. latis olivaceis, alis dorsalibus membranaceis, ventralibus obscuris.

Plant 0.6–4 dm. high, green, glabrous at base, pilose along the sides of the internodes above, simple: cauline leaves shorter than the internodes, oblong, or in very small specimens linear, scabrid, obtuse, crenate-dentate; the teeth broad and appressed: spikes 2-12-flowered: bracts scabrous, the lower similar to the upper leaves, the middle and upper triangular-ovate, attenuate, about equalling the calyx, laciniate-dentate; the lower teeth spreading, aristate-acuminate, longer than the upper: flowering calyx ovate-oblong; fruiting suborbicular, 1.3–1.9 cm. long, glabrescent, the margins ciliate: corolla yellow, 1–1.2 cm. long, the straight tube exserted; the upper lip 3–4 mm. long, its lower margin convex, the teeth yellow, obliquely quadrilateral, subtruncate, 0.5 mm. long, 1.5 mm. broad; the lower lip 1 mm. long, yellow or rarely violaceous: seeds reniform, 5–6 mm. long 3.5 mm. wide, olive-brown, the dorsal wing membranaceous, the ventral obscure.— Quebec, common on alpine meadows and slopes, altitude 950–1125 m., Table-topped Mountain, Gaspé Co., August 7, 1906 (*Fernald & Collins*, no. 248), August 12, 1881 (*J. A. Allen*): New Hampshire, "in alpinis Montium Alborum" (*Wm. Oakes*); "White Mount. in locis humidis alpinis cum *Veronica alpina* et caet," 1843 (*E. Tuckerman*); head of Oakes Gulf, August 28, 1877, August 29, 1890 (*E. & C. E. Faxon*); moist grassy soil, edge of Oaks Gulf, August 8, 1896 (*E. F. Williams*); Lion's Head, Alpine Garden, Mt. Washington, September 1, 1890 (*E. & C. E. Faxon*). Various specimens from the Labrador coast are apparently referable here.

From the essentially coastal *Rhinanthus Crista-galli* of New England and the Maritime Provinces *R. oblongifolius* is distinguished by several characters. In the coastal plant the leaves are narrower, lance- or linear-attenuate, and sharply serrate with more spreading teeth; and in drying the stems and foliage become strongly blackened. *R. oblongifolius*, with oblong crenate-toothed leaves, on the other hand, retains its green color even in the old specimens of Oakes. In *R. Crista-galli* the lateral teeth of the upper lip of the corolla are about as long as broad and dark-colored; in *R. oblongifolius* much broader than long and yellow. In *R. Crista-galli* the ventral wing of the seed is conspicuously thickened and clearly defined; in the seed of *R. oblongifolius* it is only slightly thickened and less clearly defined.

Gray Herbarium.

Is Rhinanthus Crista-galli an introduced Plant? — As long as all our New England *Rhinanthus* was supposed to be *R. Crista-galli* L. there was no question as to its being indigenous; its center of distribution was thought to be among the alpine or subalpine plants of the White Mountains, and its occurrence elsewhere seemed to indicate a distribution by no means unprecedented, since some plants found at a considerable elevation in Vermont and New Hampshire occur along the coast of Maine, a range recalling the distribution of the hermit thrush and some other distinctive White Mountain birds, which breed at sea level as far to the southwest as Casco Bay. But now that the White Mountain *Rhinanthus* is found to be a distinct and new species, the character of the stations in which the true *R. Crista-galli* occurs is worthy of notice. It seems to be always in fields and pastures and along roadsides; never away from human influence.

The writer first saw the plant at Cushing, Maine; the attention of a farmer being called to it, as a novelty to the writer, he replied: "Yes, it is getting to be very common now-a-days." At Cape Rosier, and at Eagle Island in Penobscot Bay, it was very common, but at both places the older farmers said that it was not there in their younger days; at Cape Rosier they called it "Mormon Weed," as it made its appearance at the time of the Mormon excitement, that is, some time after 1850. It was reported to have been introduced into Eagle Island in hay from the mainland. While the question of its being a native or a naturalized foreigner can hardly be settled positively, it would seem that the probabilities are in favor of the latter theory.— F. S. Collins, Malden, Massachusetts.

Acanthospermum australe at Lawrence, Massachusetts.— A plant which grew last summer in a cabbage-garden in the suburbs of Lawrence attracted attention as something unusual and an unsuccessful effort was made to classify it. A specimen was sent to the Gray Herbarium and there determined as *Acanthospermum australe* (Loefl.) Ktze., a peculiar member of the *Compositae*, which is ordinarily confined to tropical regions. The cabbage field where the Acanthospermum grew had been fertilized by wool-waste from one of the mills, and as several strange plants were seen there the locality will be watched with interest another season. — E. S. Schneider, Lawrence, Massachusetts.

FURTHER INFORMATION REGARDING THE OCCURRENCE OF DRYOPTERIS FILIX-MAS IN VERMONT.

Mabel A. Strong.

On the twelfth of last August, while spending a day in the woods in central Vermont I had the pleasure of finding *Dryopteris Filix-mas.* At first I saw only five or six clumps, containing from one to six plants each and growing in a partially exposed place, seemingly an old wood road or spring water course and overgrown with thin grass, dwarfed raspberry bushes and weeds; but upon a second visit and more careful exploration I counted over forty clumps comprising a hundred or more plants and extending farther into the deeper woods. The whole group, so far as observed, covered an area which one might have walked around in perhaps three minutes. The individual ferns varied from tiny ones to magnificent specimens waist high.

Noticeable at the edge of the deeper wood and shading some of the ferns in question are several large butternut trees. The soil is very black and rich while the underlying and partially exposed ledges are of a lead-colored rock. At the left side of this road or water course is a thick growth of sapling maples, but none of the ferns were found there.

This wood crowns the top of a pasture hill at an elevation of about sixteen hundred feet and has a northern exposure. It is situated in the southwestern corner of the town of Woodstock near the Bridgewater and Reading lines. In other words it is about six miles due west of Hartland Four Corners, where Miss Darling discovered this fern over a year ago.

Growing in the midst of the area just described is one fine clump of *Dryopteris Goldiana* and distributed through the woods are quantities of the finest specimens of Braun's Holly Fern I have ever seen, excepting those growing near the summit of Killington.

Several other species of *Dryopteris* are found in the immediate vicinity, namely *D. spinulosa, D. marginalis, D. noveboracensis,* and *D. acrostichoides,* while somewhat lower on the slope and in the open pasture occur *Dicksonia, Adiantum,* and *Asplenium Filix-foemina.*

A few rods farther down the road leading past this place and toward Long Hill in Bridgewater, Miss Elizabeth Billings found the Blue Fringed Gentian growing.

Woodstock, Vermont.

Arceuthobium in the Rangeley Region.—While walking along the line of the South Bog Railroad, in the township of Rangeley Plantation, Maine, I passed through a considerable quantity of Black Spruce. A few of the trees had suspicious-looking "witches' brooms" on them, which proved on investigation to contain *Arceuthobium pusillum* Peck. Very few of the trees, however, were thus affected. The nearest recorded station for this species so far as I know is in Pleasant Ridge Township, about forty miles to the east of the one reported here.— John Murdoch, Jr., Harvard Forestry Expedition.

Note on Cirsium muticum, var. monticola.—In the Ottawa Naturalist, I recently described the alpine thistle of the Shickshock Mountains, and inadvertently placed it in *Cnicus*, a genus which, as now everywhere interpreted, consists of the single species, *Cnicus benedictus*, the Blessed Thistle. The plant of the Shickshock Mountains should bear the name

Cirsium muticum Michx., var. **monticola**, n. comb.—*Cnicus muticus*, var. *monticola* Fernald, Ottawa Nat. xix. 166 (1905).—Explorations during the past summer showed that on Mt. Albert this plant abounds throughout the serpentine area, descending from the alpine meadows, in the gorge of Ruisseau à la Neige, nearly to Lac au Diable at an altitude of 550 meters; while it is apparently quite absent from the hornblende district of the mountain. It was also found on Table-topped Mountain, in a single alpine meadow whose mixed soil supported *Danthonia intermedia*, *Solidago multiradiata*, and a few other plants, which in the Shickshock Mountains have their great development on the serpentine.—M. L. Fernald, Gray Herbarium.

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